

# PATENT SPECIFICATION

821,665

DRAWINGS ATTACHED.

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International Classification:—A47b, c.

## COMPLETE SPECIFICATION.

### Improvements in Folding Chairs or Tables.

We, ROY STEWART & COMPANY LIMITED, a Company organised under the laws of Great Britain, of Buckingham House, 19/21 Palace Street, Westminster, London, S.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to chairs or stools hereinafter referred to as chairs, and to tables.

It is well known that many different types of folding chair and table have been proposed differing one from another in the degree of complexity of their construction. From the view point of the manufacturer, simplicity of design is of paramount importance in deck chair construction in that it allows the chair to be made of materials in shapes that are readily available and to be assembled without difficulty, both factors being of considerable importance in the employment of mass production methods. Again, since the demand for deck chairs is largely seasonal, the designer of the chair must bear in mind the ease with which the chairs may be stacked for the purposes of storage of stock.

Ease of assembly and relatively low cost are considerations which also weigh with the purchaser of the deck chair, and in addition the attractive appearance of the article and the ease with which it may be carried from place to place, preferably by hand, have their appeal.

It is the object of this invention to provide a folding chair which has these desirable features.

According to the present invention, a fold-

[Price 3s. 6d.]

ing chair or table comprises two frame members, each of which frame members forms one pair of legs, an element forming the seat of the chair or the top of the table being connected to the said frame members, and coupling members secured respectively one to each of the legs of one of the frame members to embrace corresponding legs of the other frame member in such a manner as to permit relative slidable movement between the frame members and to limit the angular relationship thereof so that in their position of use they cross each other in the form of an X.

In a convenient and economical form of the invention the frame members are made of steel tubing each being in the form of an inverted U and one of the members has coupling members secured to its limbs in which coupling members the other member is slidable, the coupling members being so designed as to provide load bearing surfaces and also to provide abutment surfaces which serve to retain the two members at the correct inclination when the chair or table is in use.

In the preferred form of the invention stop members are provided for engagement with the coupling to lock the frame members in one or more suitable inclinations of the chair back or levels of the table top as the case may be.

The invention is illustrated in the accompanying drawings as applied to a chair of which:—

Figure 1 is a perspective view of the erected chair;

Figure 2 is a perspective view of the chair in a configuration intermediate between the erected and the fully folded positions;

Figure 3 is a detail sectional view showing the co-operation between the stop member and coupling member to hold the frame of the chair in the erected position; and

5 Figure 4 is a detail sectional view corresponding to Figure 3 showing the positions of the frame members in the folded position of the chair.

Referring now to Figures 1 and 2, the chair is constructed from two inverted U-shaped frame members 1 and 2 of steel tubing each comprising parallel limbs connected through right angle bends to a cross piece. The frame member 1 constitutes the chair back and the front legs, while the frame member 2 provides the front part of the chair and the back legs. The cross piece 3 of frame member 1 is slightly longer than the cross piece 4 of the other frame member to enable the two members 1 and 2 to be disposed in the form of an X, with the limbs 5 of the frame member 1 arranged outside the limbs 6 of frame member 2. The two frame members are held in the position shown in Figure 1 by the co-operation of coupling members 7 bolted to the outer limbs 5 and stop members 8 riveted to the limbs 6 and as described more fully hereinafter.

30 To provide the seat portion of the chair, a length of stout canvas 9 is slung between the cross pieces 3 and 4 and is connected to the cross pieces by loops formed at its ends.

35 The lower end portions 10 of both front and back legs of the chair are bent to provide feet for engagement with the ground to give the chair greater stability and the extremities of the portions 10 are provided with rubber sleeves 11 to enable the chair to be used on polished surfaces or to prevent damage to carpets.

Referring now to Figure 2 and to Figures 3 and 4, it will be seen that the coupling members 7 are generally U-shaped, one limb 12 of which provides the bearing surface for a leg 6 when the chair is erected, the other limb 13 acting as a stop to prevent the chair collapsing by pivotal movement. For this purpose the limbs 12 and 13 are formed respectively with curved surfaces 14, 15 and 14', 15' at an angle to each other and of complementary shape to the tubular frame members. As seen in Figures 3 and 4, the leg 6 bears against surfaces 14 and 15' when the chair is under load but rests against the surfaces 15 and 14' when the chair is folded.

The stop members 8 are in the form of stepped lugs presenting two alternative abutment faces 16, 17 for engagement with the surfaces 14' on the brackets 7 to enable the chair to be locked in two alternative inclinations. In Figure 3 the leg 6 is shown in full lines with the abutment face 16 engaging the coupling members 7 and in dot and dash

lines at a different inclination in which the other face 17 engages the brackets.

To assemble the chair the lower ends of the frame member 2 are slidden through the coupling members 7 on the frame member 1 until the lugs 8 engage with the brackets 7 in whichever of the alternative positions is required. To fold the chair, the two cross pieces 3 and 4 are gripped manually and brought towards each other, the frame member 2 sliding upwardly relative to the frame member 1 during this movement.

In an alternative embodiment of the invention the coupling members may be formed on the inner frame member and the outer frame member may have the stop members.

From the preceding description it will be apparent that chairs constructed according to the invention have the great merit of simplicity, and by making use of metal tubing permit the advantages of robustness and lightness in weight to be combined. They are very easily assembled and taken apart and, by sliding the movable sections through the coupling members and bringing the cross pieces of the two sections together, a very neat and compact arrangement is produced which may be stored in a very small space and easily stacked.

As to the construction of the chair there is no need to provide a back strut as in conventional deck chairs since the stop members in the coupling member effectively lock the two U-shaped sections in position.

Furthermore it may be emphasized that there is very little possibility of damaging the fingers as compared to the usual type of deck chair, and in the construction specifically described and more weight that is put upon the chair the more securely is it locked in position.

#### WHAT WE CLAIM IS:—

1. A folding chair or table comprising two frame members, each of which frame members forms one pair of legs, an element forming the seat of the chair or the top of the table being connected to the said frame members, and coupling members secured respectively one to each of the legs of one of the frame members to embrace corresponding legs of the other frame member in such a manner as to permit relative slidable movement between the frame members and to limit the angular relationship thereof so that in their position of use they cross each other in the form of an X.

2. A folding chair or table according to Claim 1, in which the frame members are each in the form of an inverted U.

3. A chair according to Claim 1 or 2, in which stop means are provided which serve to lock the chair in one or more suitable inclinations of the chair back.

4. A chair according to Claim 3, in which

which the stop means comprises a lug secured to each of the legs of one frame member, the coupling members being on the other member, which lugs are of stepped formation to provide a number of alternative abutment faces for engagement with the coupling means, whereby the inclination of the chair back may be adjusted.

5. A chair or table according to any of Claims 1 to 4, in which the frame members are of tubular steel.

6. A chair or table according to any

of Claims 1 to 5, in which the lower end parts of the legs are bent so as to form feet for engagement with the ground.

7. A folding chair or table substantially as hereinbefore described and with reference to the accompanying drawings.

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## PROVISIONAL SPECIFICATION.

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This invention relates to chairs or stools hereinafter referred to as chairs, and to tables.

It is well known that many different types of folding chair and table have been proposed differing one from another in the degree of complexity of their construction. From the view point of the manufacturer, simplicity of design is of paramount importance in deck chair construction in that it allows the chair to be made of materials in shapes that are readily available and to be assembled without difficulty, both factors being of considerable importance in the employment of mass production methods. Again, since the demand for deck chairs is largely seasonal the designer of the chair must bear in mind the ease with which the chairs may be stacked for the purposes of storage of stock.

Ease of assembly and relatively low cost are considerations which also weigh with the purchaser of the deck chair, and in addition the attractive appearance of the article and the ease with which it may be carried from place to place, preferably by hand, have their appeal.

It is the object of this invention to provide a folding chair which has these desirable features.

A folding chair or table according to the present invention comprises two frame members adapted to be detachably and slidably secured together, one member forming the front legs and the other member the back legs, between which members an element forming the seat of the chair or table top may be connected, one member including means in which the other member can slide, which means also operates to limit the angular

relationship of the members so as to lock them in the erected chair position.

The present invention may thus comprise a folding chair of the X type wherein each pair of front and back legs permits of sliding movement of one leg in the direction of its length relative to the other leg, whereby the front and back legs may be engaged with or disengaged from each other, said front and back legs being maintained in position when the chair is erected, by the co-operation between one leg and abutment surfaces on or associated with the other leg.

One of the abutment surfaces provided in chairs according to the present invention acts as a support for the slidable leg and also as a load bearing members, and further co-operates with the slidable leg to prevent pivotal movement of the fixed leg under its own weight, and a fortiori, when the chair is occupied. The other abutment surface acts as a stop to prevent pivotal movement of the slidable leg.

To illustrate some of the advantages of the present invention one embodiment thereof will be described by way of example.

A chair is constructed from two inverted U-shaped sections of metal tubing each comprising parallel limbs connected by a cross piece. The cross piece of one section is longer than that of the other so that the limbs of the wider section may embrace those of the other section, and the two sections are arranged one astride the other with their cross pieces connected by a length of stout canvas which provides the seat and back rest portions of the chair.

The lower portions of the limbs of the two sections constitute respectively the front and back legs of the chair and their upper portions provide the back and front framework thereof. The lower end portion of each of the legs is bent at an angle to the greater length of the leg so that when the chair is erected with the legs disposed at pre-arranged inclinations, each leg is in contact with the ground or floor over an ex-

tended portion of its length thereby giving greater stability to the structure.

Upon the limbs of the wider section and on the inner sides thereof are located at 5 corresponding levels brackets of robust construction, preferably solid metal, and bolted to the limbs which brackets support the limbs of the other section and permit sliding 10 movement of those limbs in their axial direction. The brackets each comprise two stops one for supporting the slidable limb and taking the weight of a person sitting on the chair and also preventing pivotal movement 15 of the fixed limb and the other for preventing pivotal movement of the slidable limb. The stops thus provide the abutment surfaces, the surface on the supporting stop being disposed to support the slidable limb at a suitable inclination for the chair 20 back.

To assemble the sections together therefore, the lower ends of the limbs of the narrow section are inserted into the bracket, 25 slid between the stops, and then slid further until the bent end portions engage with the ground.

Advantageously locating pegs are provided on the slidable limbs and positioned to abut against the brackets when the said 30 limbs are correctly located so as to give an indication of the fact.

In an alternative embodiment it is possible to arrange the brackets on the limbs of the inner U-section and have the outer U-section 35 slidable axially of its limbs. Modifications of the invention are also possible in which provision is made for adjusting the inclination of the chair back.

From the preceding description it will be apparent that chairs constructed according 40 to the invention have the great merit of simplicity, and by making use of metal tubing permit the advantages of robustness and lightness in weight to be combined. They are very easily assembled and taken apart 45 and, by sliding the movable sections through the brackets and bringing the cross pieces of the two sections together, a very neat and compact arrangement is produced which may 50 be stored in a very small space and easily stacked.

As to the construction of the chair there is no need to provide a back strut as in conventional deck chairs since the stop members in the bracket effectively lock the two U-shaped 5 sections in position.

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821.665 COMPLETE SPECIFICATION  
3 SHEETS  
This drawing is a reproduction of  
the Original on a reduced scale.  
SHEETS 1, 2 & 3

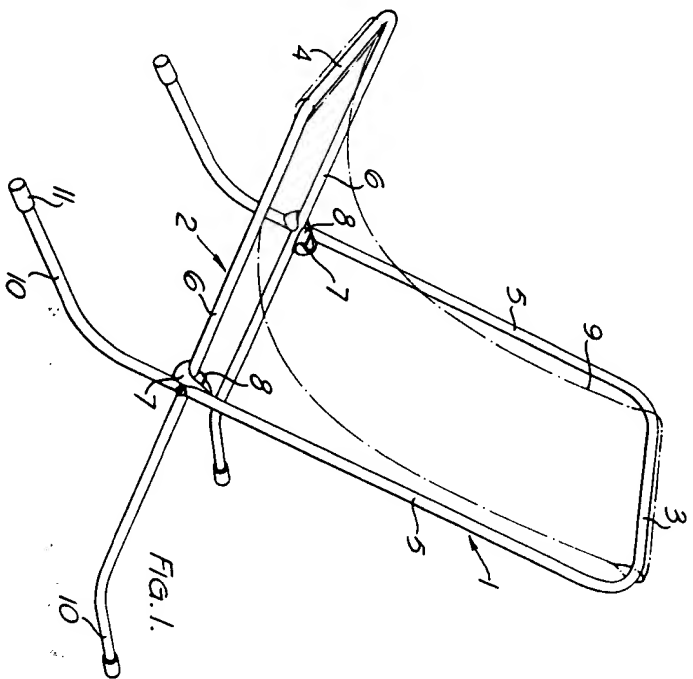


FIG. 1.

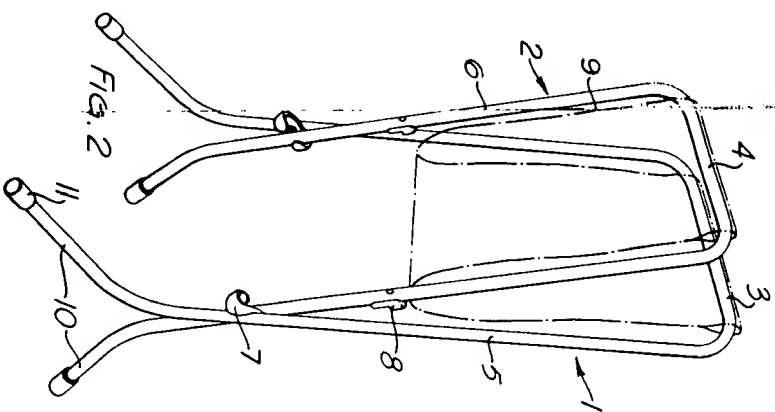


FIG. 2

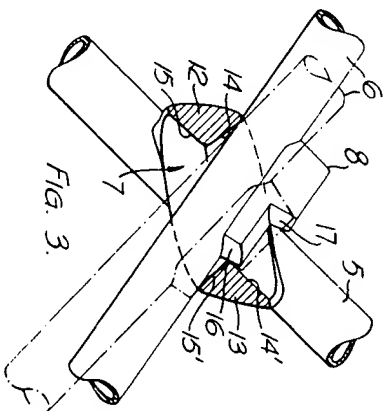


FIG. 3.

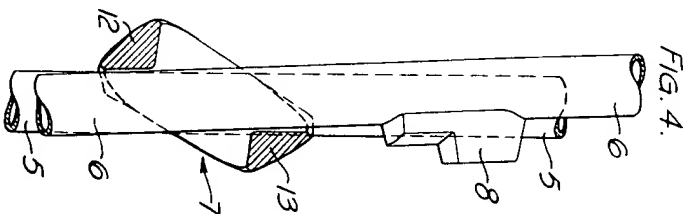


FIG. 4.

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